

CLAIMS

1. A loudspeaker comprising:

at least a magnetic circuit (6);

5 a frame (5) connected to said magnetic circuit; and

a diaphragm (2) connected to a voice coil (3), an outer periphery of said diaphragm being bonded to said frame via an edge (1), and an inner periphery of said diaphragm being bonded to said voice coil, said voice coil being inserted into a magnetic gap of said magnetic circuit,

10 wherein a thickness of sectional shape of an inner periphery portion (12) of said edge is thinner than a thickness of a sectional shape of an outer periphery portion (13) of said edge.

2. The loudspeaker of claim 1, wherein said edge is made of one of an elastic resin and a foamed resin.

15 3. The loudspeaker of claim 2, wherein said foamed resin includes both of independent foam and continuous foam.

4. The loudspeaker of claim 2, wherein an expansion ratio of said foamed resin differs between the inner periphery portion and the outer periphery portion of said edge.

20 5. The loudspeaker of claim 1, wherein said edge is made of a foamed resin having a skin layer.

6. The loudspeaker of any one of claims 1 or 2, wherein said edge is divided into a plurality of sections in a circumferential direction with convex portions (14a) and concave portions (14b) alternately arranged.

25 7. The loudspeaker of any one of claims 1 or 2, wherein a size of the inner periphery (12) of said edge is smaller than a size of the outer periphery (22) of said diaphragm.

8. The loudspeaker of any one of claims 1 or 2, wherein a cross section of said edge has corrugations in a radial direction.

30 9. The loudspeaker of any one of claims 1 or 2, wherein a plurality of rib-shaped convex portions (15) are provided in a radial direction of said edge.

10. The loudspeaker of any one of claims 1 or 2, wherein a plurality of rib-shaped convex portions (16) are provided in a circumferential direction of said edge.

5 11. The loudspeaker of any one of claims 1 or 2, wherein said loudspeaker has a long shape, and wherein a thickness of said edge in lengthwise direction is greater than a thickness of said edge in widthwise direction.

10 12. The loudspeaker of claim 6, wherein said loudspeaker has a long and slim shape, and wherein a variation of thickness of said edge in lengthwise direction is greater than a variation of thickness of said edge in widthwise direction .

13. The loudspeaker of claim 12, wherein a size of an inner periphery (12) of said edge is smaller than a size of an outer periphery (22) of said diaphragm.

15 14. The loudspeaker of claim 12, wherein a cross section of said edge has corrugation in a radial direction.

15. The loudspeaker of claim 12, wherein a plurality of rib-shaped convex portions (15) are provided in a radial direction of said edge.

20 16. The loudspeaker of claim 12, wherein a plurality of rib-shaped convex portions (16) are provided in a circumferential direction of said edge.

17. The loudspeaker of claim 12, wherein said loudspeaker has a long shape, and wherein a thickness of said edge in lengthwise direction is greater than a thickness of said edge in widthwise direction.

25 18. The loudspeaker of any one of claims 1 or 2, wherein said diaphragm and said edge are unitary formed and bonded to said frame.

19. A loudspeaker comprising:

at least a magnetic circuit (6);

a frame (5) connected to said magnetic circuit; and

30 a diaphragm (2) connected to a voice coil (3), an outer periphery of said diaphragm being bonded to said frame via an edge (1), and an inner periphery of said diaphragm being bonded to said voice coil, said voice coil being inserted

into a magnetic gap of said magnetic circuit,

wherein said loudspeaker has a long shape, and wherein a thickness of said edge in lengthwise direction is greater than a thickness of said edge in widthwise direction.

5 20. A loudspeaker comprising:

at least a magnetic circuit (6);

a frame (5) connected to said magnetic circuit; and

10 a diaphragm (2) connected to a voice coil (3), an outer periphery of said diaphragm being bonded to said frame via an edge (1), and an inner periphery of said diaphragm being bonded to said voice coil, said voice coil being inserted into a magnetic gap of said magnetic circuit,

wherein said edge is divided into a plurality of sections in a circumferential direction with convex portions (14a) and concave portions (14b) alternately arranged.

15 21. A loudspeaker comprising:

at least a magnetic circuit (6);

a frame (5) connected to said magnetic circuit; and

20 a diaphragm (2) connected to a voice coil (3), an outer periphery of said diaphragm being bonded to said frame via an edge (1), and an inner periphery of said diaphragm being bonded to said voice coil, said voice coil being inserted into a magnetic gap of said magnetic circuit,

wherein a size of the inner periphery (12) of said edge is smaller than a size of the outer periphery (22) of said diaphragm.

25 22. A loudspeaker comprising:

at least a magnetic circuit (6);

a frame (5) connected to said magnetic circuit; and

30 a diaphragm (2) connected to a voice coil (3), an outer periphery of said diaphragm being bonded to said frame via an edge (1), and an inner periphery of said diaphragm being bonded to said voice coil, said voice coil being inserted into a magnetic gap of said magnetic circuit,

wherein a cross section of said edge has corrugations in a radial

direction.

23. A loudspeaker comprising:

at least a magnetic circuit (6);

a frame (5) connected to said magnetic circuit; and

5 a diaphragm (2) connected to a voice coil (3), an outer periphery of said diaphragm being bonded to said frame via an edge (1), and an inner periphery of said diaphragm being bonded to said voice coil, said voice coil being inserted into a magnetic gap of said magnetic circuit,

10 wherein a plurality of rib-shaped convex portions (15) are provided in one of a radial direction and a circumferential direction of said edge.

24. A loudspeaker comprising:

at least a magnetic circuit (6);

a frame (5) connected to said magnetic circuit; and

15 a diaphragm (2) connected to a voice coil (3), an outer periphery of said diaphragm being bonded to said frame via an edge (1), and an inner periphery of said diaphragm being bonded to said voice coil, said voice coil being inserted into a magnetic gap of said magnetic circuit,

wherein said diaphragm and said edge are unitary formed and bonded to said frame.